MTX series

MTX0808DA
MTX1608DA
MTX1616DA
DVI and Stereo-Audio Matrix Switcher

User Manual
(English)

COMM-TEC GmbH
Siemensstr. 14
D-73066 Uhingen

Tel.: +49-7161-3000-0
Fax: +49-7161-3000-333

www.comm-tec.de

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1. Safety Warnings / Precautions

Please read this manual carefully before using your Matrix Switcher. It is recommended that you keep this manual handy for future reference. These safety instructions are to ensure the long life of your MTX unit and to prevent fire and shock hazard. Please read them carefully and follow all warnings.

1.1 General

- Do not open the cover of the equipment since there are high-voltage components inside creating the risk of electric shock.
- Qualified Comm-Tec service personnel, or authorized representatives must perform all service. Service preformed by unauthorized personnel without prior approval will void the warranty.
- Changes or modifications not expressly approved by the manufacturer (responsible for compliance) could void the user's authority to operate the equipment.

1.2 Installation

- For best results, place the unit on a flat, level surface in a dry area away from dust and moisture.
- Handle the Matrix Switcher carefully. Dropping or jarring can damage internal components.
- Do not place heavy objects on top of the equipment.
- To prevent fire or shock, do not expose this unit to rain or excessive moisture. Do not place the equipment in direct sunlight, near heaters or heat radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.
- To turn off the main power, be sure to remove the power cord from the power outlet. The power outlet socket should be installed as near to the equipment as possible and should be easily accessible. Make sure the outlet is properly grounded for safety as per local regulations.
- Do not pull the power cord or any cable that is attached to the equipment.
- If the equipment is not used for an extended period, disconnect the power cord from the outlet to avoid fire, shock, and loss of power.

1.3 Safety Guidelines for the Rack-Mounting of the Equipment.

- Never restrict the airflow through the equipments' fan or vents.
- Normal operating ambient temperature is between 40-100 degrees F (5 – 40°C).
- When installing equipment into a rack, distribute the units evenly. It is recommended to leave one space on top and bottom of equipment.
- Connect the unit to a properly rated power circuit (100V - 240V, 50/60Hz).
- Reliable grounding of the Rack-Mounted Equipment should be maintained.

1.4 Cleaning

- Unplug the equipment power cord before cleaning. Clean surfaces with a dry cloth. Never use strong detergents or solvents, such as alcohol or thinner. Do not use a wet cloth or water to clean the unit.

FCC / CE Notice

- This device complies with part 15 or the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

2. About the Product

2.1 Function

The MTX series Matrix Switcher is a high-performance pro-AV matrix switcher that is designed for cross switching multiple DVI computer video and audio inputs to multiple outputs. The MTX series switchers are mostly used in presentation rooms, board-rooms, broadcast TV engineering, multi-media meeting rooms, big screen display engineering, television education, command control centers, and many other installations. COMM-TEC provides a wide range of AV matrix switchers ranging from 4-inputs to 256 and 2-outputs to 256.

2.2 Features

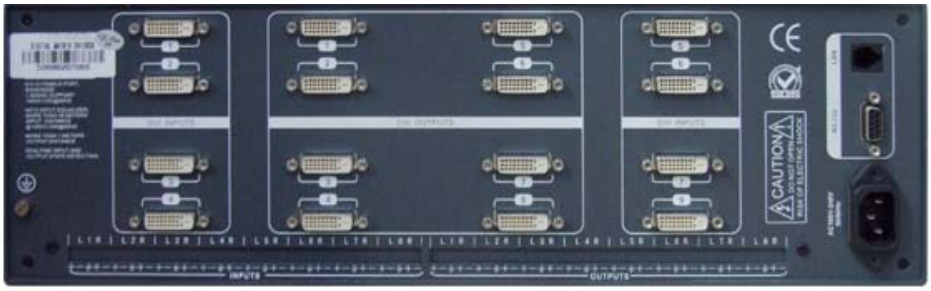
All video signal connectors are DVI-D female, the audio connectors are provided with 5pin screw terminals. The MTX Matrix Switchers can be controlled via front panel, with Infrared Remote or via RS-232 port.

Type	Configuration	Video	Audio	Unit Height	Accessories included
MTX0808DA	8x8	DVI-D	5 pin screw terminal	3 ru	Infrared Remote, power cord, RS-232 cable, Quick-Start- Guide, CD-ROM with Software and Manuals
MTX1608DA	16x8	DVI-D	5 pin screw terminal	7 ru	
MTX1616DA	16x16	DVI-D	5 pin screw terminal	7 ru	

2.3 Front Panel

Button/*Indication	Function
COMM-TEC MTX0808DA	The LCD-Display shows the entered commands and messages (status, acknowledgement, errors, prompt, matrix model and firmware)
0 - 9	Number entry for I/O selection, save and recall of presets
AV	Audio-follows-Video switching
VIDEO	Break-Away, only Video part is switched
AUDIO	Break-Away, only Audio part is switched
/	separates different numbers in one command
END	Finishes command entry
ENTER	Executes command
ALL	Option: one input to all outputs, inputs are switched to outputs with the same number or disconnect of all routings
SAVE	Saves present configuration in a preset (number entry required)
RECALL	Recall of a preset (number entry required)
CANCEL	Deletes last entry or/and returnes to standby status
STATUS	Shows the present Video- and Audioroutings in the LCD display
*THROUGH	Inputs are switched to outputs with the same number: 1 to 1, 2 to 2,....
*CLOSE	Disconnect all crosspoints/routings

2.4 Back Panel



Back panel 8 x 8 with Audio

Depending on the model of the matrix, the video signal I/O interface is made up of 8 or 16 DVI-D female terminals. Audio signal I/O terminals are made up of 8 or 16 5pin captive screw terminals for each channel (left & right together). The channel numbers of the signal I/O terminals start from channel 1 to the maximum number of channels depending on the model. The left audio channel is indicated with L +/-, the right channel with R +/-. Common ground is connected to the middle pin (grounding sign).

The MTX matrix switchers have an internal power supply with IEC female connector for power cord. There is a 9pin Sub D female connector for RS-232 port. An RJ-11 port (AUX Control) is for future expansion.

3. Installation

3.1 Hardware Installation

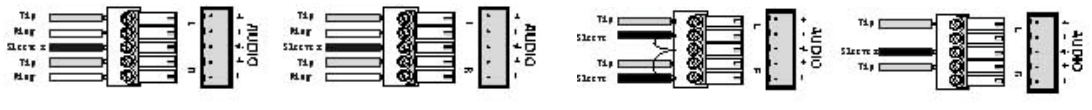
The MTX matrix switchers are rack-mountable using the holes in the front panel. Take a set of standard rack screws and secure the unit into the rack. For ideal performance and easy wiring access it is advisable in a 19“ rack leave at least 1ru space above and below. Do not place high heat-producing equipment directly above or below the enclosure.

3.2 DVI Connection

Use good quality DVI-D cable for all video connections. Switch off all units while connecting sources and destinations.
The DA MTX matrix switchers support DVIComputer Video signal sources. If the device doesn’t have DVIoutput signal, use a VGA to DVI adapter cable or converter.

3.3 Audio Connection

RGBHV Matrix switchers with audio come with terminal block connectors (captive screw terminals connectors) located under the BNC connectors. There are two types of audio signals: balanced or unbalanced. Balanced audio cables carry two signals per channel and ground while unbalanced audio cables only use one signal per channel and a common ground. Both signal types can be connected to the RA MTX series.



3.4 RS-232 Connection

All functions of the MTX units can be controlled with external controllers like computers or third party controllers (e.g. AMX). A serial controller is any device that is connected to the standard RS-232 serial port (9pin SubD female) on the rear panel and that can send and receive ASCII character format.
The port settings are:

BAUD	9600
Data Bits	8
Stop Bit	1
Parity	NONE

Connect serial controllers refering to the table below for RS-232 cable connector pin mapping:

Pin-#. at UP-1280SU RS-232 Port	Description	Pin-# at PC RS-232 Port	Description
2	Tx Transmit	2	Rx Receive
3	Rx Receive	3	Tx Transmit
5	Gnd Ground	5	Gnd Ground

4. Operation

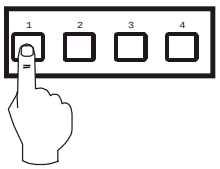
The DVI matrix switcher can be controlled by the front control panel, infrared remote controller, Ethernet control (optional), and the RS-232 communication port.

4.1 Front Panel Operation

Using the front control panel, the switcher can be controlled directly by pressing the buttons using this format:

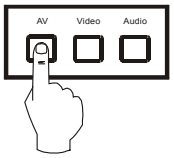
“Input Channel” + “Switching Mode” + “Output Channel” + “End” + “Enter”

Example 1 : Transfer video and audio signals from input channel 1 to output channels 3 and 4



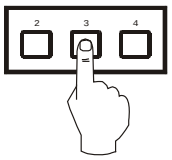
Input Command:
1

1. Press the button for input channel number “1”.
Display feedback on LCD: “1”



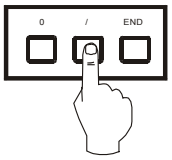
Input Command:
1B

2. Press the button for switching mode “AV”.
Display feedback on LCD: “B” (“B” for both audio and video, “A” for audio only; “V” for video only).



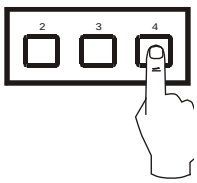
Input Command:
1B3

3. Press the button for the first output channel number”3”.
Display feedback on LCD: “3”



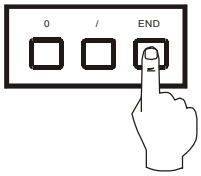
Input Command:
1B3,

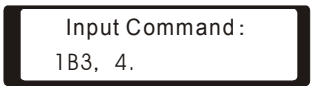
4. Press the break button “/”.
Display feedback on LCD: “,”



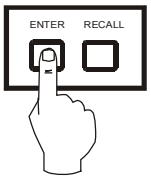
Input Command:
1B3, 4

5. Press the button for the second output channel number “4”.
Display feedback on LCD: “4”





6. Press the button “END” to finish the command.
Display feedback on LCD: “.”

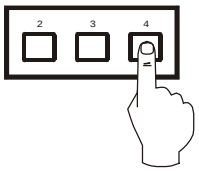


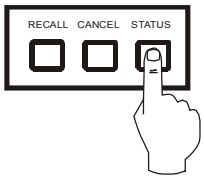
7. Press the button “ENTER” to perform this command.
Display feedback on LCD: “Switch OK”

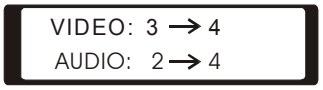
Switch OK!
AV: 01 -> 004

Example 2: To inquire the status on the output channel No.4

Operation: Press buttons in this order “4”, “STATUS”







Feedback on LCD-Display: The video input #3 and the audio input #2 are switched to the output #4.

More switch commands:

„ALL“ + „1“: Routes inputs to outputs with the same number: 1 to 1, 2 to 2,....
„1“ + „ALL“: Routes input #1 to all outputs, <2> <ALL>: Routes Input #2 to all outputs, and so on.
„ALL“ + „2“: Disconnects all routed crosspoints.

„SAVE“ + „0“ to „9“: Saves present configuration as preset under selected number.
„RECALL“ + „0“ to „9“: Recalls saved preset with the selected number.

4.2 Remote Controller Operation

The MTX series matrix switcher can be controlled with the supplied infrared remote controller.
Button functions are the same as with front panel. Only the buttons „Through“ and „Close“ have a functions when pressed directly after „ALL“.
The keys <PROGRAM>, <UNDO>, <DEMO> are without function. Attention <LOCK> button: before usage set password with control software. Otherwise front panel can be only unlocked with this software.
For details please refer to **Front Panel Operation**.

4.3 RS-232 Operation

Through the RS-232 port located on rear panel one is able to control and operate the MTX Matrix remotely.
Communication protocol: RS-232, ASCII commands are case sensitive.
Port Settings: Baud rate: 9600, Data bit: 8, Stop bit: 1, Parity bit: None

Functions	ASCII Commands and Protocols	Example	Default
System Command			
Rewrites the password. Must be 8 digits.	/+**xxxxxxxx**;	/+12345678;	None
Locks the keyboard	/%Lock;	/%Lock;	Not Locked
Unlocks the keyboard	/%Unlock;	/%Unlock;	N/A
Turns OFF buzzer	/:Belloff;	/:Belloff;	Beep ON
Turns ON buzzer	/:Bellon;	/:Bellon;	N/A
Sets the delay time for background light in minutes. Range: 001 to 240.	/%Backlight**xxx**;	/%Backlight005;	30 min.
Operation/Control Command			
Connects input "x" to ALL output channels.	**x**All.	3All.	N/A
Connects the video signal from input "x" to the matching output.	**x#**.	4#.	Not Connected
Connects ALL input signals to the matching output channels.	All**#**.	All**#**.	N/A
Switches OFF ALL the output channels.	All$.	All$.	All ON.
Switches OFF output "y".	**y**$.	2$.	N/A
Connects video from input "x" to output "y".	**x**V**y**.	2V3.	N/A
Connects video from input "x" to outputs "y, y2, y3".	**x**V**y**,**y2**,**y3**.	1V3,4,5.	N/A
Connects audio from input "x" to output "y".	**x**A**y**.	2A4.	N/A
Connects audio from input "x" to outputs "y, y2, y3".	**x**A**y**,**y2**,**y3**.	1A2,3,4.	N/A
Connects video and audio from input "x" to output "y".	**x**B**y**.	3B5.	N/A
Connects video and audio from input "x" to outputs "y, y2, y3".	**x**B**y**,**y2**,**y3**.	2B4,5,6.	N/A
Connects input "x" to ALL outputs in group "g".	**x**P**g**.	1P1.	N/A
Groups the outputs "y, y2, and y3" under the group "g".	**g**PP**y**,**y2**,**y3**.	2PP1,2,3.	N/A
Saves configuration to the preset command "y". "y" ranges from 0 to 9.	Save**y**.	Save9.	All Available
Recalls the preset command "y".	Recall**y**.	Recall7.	N/A
Clears the preset command "y".	Clear**y**.	Clear5.	N/A
Feedback/Status Command			
Displays the outputs channels in Group "g".	S**g**.	S2.	N/A
Displays the input channel of output "y".	Status**y**.	Status4.	N/A
Displays the inputs to the connected outputs one by one.	Status.	Status.	N/A
Displays the models information.	/*Type;	/*Type;	Varies per model
Displays Software Version	/^Version;	/^Version;	V2.z
Displays COM port feedback information.	/:MessageOn;	/:MessageOn;	N/A

5. Specifications

Type Spezifikationen	MTX0808DA	MTX1608DA, MTX1616DA
Video		
Bandwidth	165MHz (-3dB), all digital	
Resolution	1600x1200 @60 bit Clock Jitter: <0.15Tbit	
Switching speed	200ns	
Video input		
Connector	DVI-D female	
Signal strength	T.M.D.S +/- 0.4Vpp	
Maximum/Minimum level	T.M.D.S 2.9V/3.3V	
Resistance	50 Ω	
Max. distance	< than 36m, 1600x1200@60Hz	
Video Output		
Connector	DVI-D female	
Maximum/Minimum level	T.M.D.S 2.9V/3.3V	
Resistance	50 Ω	
Max. distance	< than 7m, 1600x1200@60Hz	
Audio Signal		
I/O connector	3.8 mm with screw, 5 pole	
Gain	0dB	
Frequency respond	20 Hz - 20 kHz	
General harmonic distortion + noise	0,03% bei 1 kHz	
S/N	>90dB	
Segregation rate	>80dB @1 kHz	
CMRR	>75dB @ 20 Hz - 20 kHz	
Signal	Stereo, balanced	
Impedance	Eingang: >10 kΩ (balanced/ unbalacend) Ausgang: 50 Ω (unbalanced), 100 Ω (unbalanced)	
Max. input level	+19,5dBu, (balanced/ unbalanced)	
Gain error	±0,1dB	
Max. output level	+19,5dBu (balanced/ unbalancend)	
Control type		
Serial control port	RS-232, 9-pin Sub D connector female	
Baudrate and protocol	Baudrate: 9600, Data bit: 8, Stop bit: 1, Parity bit: none	
Serial port pin out	2 = TX, 3 = RX, 5 = GND	
Command/ protocol	ASCII	
Sonstiges		
Power supply	100V - 240V~, 50/60 Hz, universal international power	
temperature	Storing and operating temperature: 5° - +40°C	
humidity	Storing and operating humidity: 10% - 90%	
Dimensions (W x D x H) / HE	483 x 260 x 133,5mm – 3ru	483 x 260 x 312mm – 7ru
weight	4,2 kg	10kg
MTBF	30.000 hours	
Warranty	1 year	

6. Warranty, Service and Returns Policy

This product is under warranty for a period of one (1) year from the date of purchase.
COMM-TEC's liability and Buyer's remedies under this warranty shall be limited solely to repair of the faulty units free of charge.
This warranty does not apply if the product has been modified, repaired by an unauthorized agent, or improperly installed, used, or maintained.

If a problem occurs first contact your dealer or COMM-TEC for trouble shooting.
If verification of a problem requires factory repair, ask COMM-TEC's representative to issue a

Return Materials Authorization (RMA) number.

Merchandise will not be accepted without a RMA number.
When returning a product to COMM-TEC in Uhingen for repair please comply with the following instructions:

- Shipping and insurance costs must be prepaid
- Use original shipping container(s), (if possible)
- Indicate the RMA number clearly on the outside of each container
- Enclose a written description of the problem

The under warranty repaired units will be returned Carriage Free to the sending party (dealer or consumer).

Outside the warranty period, COMM-TEC will repair the faulty units, charging all arising expenses of the repair e.g. labor, parts, transportation and insurance, to the sending party (dealer or consumer).

For any problems during installation and operation of a MTX series unit
call the COMM-TEC hotline +49 07161 3000-0,
send a fax +49 07161 3000-333
or e-mail to info@comm-tec.de